FRANKEL, D.

Connection schemes for usual wattmeters for measurements of active and reactive power in a three-phase system with neutral conductor.

p. 56
Vol. 4, no. 2, Feb. 1956
ELECTROTEHNICA
Bucuresti

SO: MONTHLY LIST OF EAST EUROPEAN ACCESSIONS (EEAL) LC, Vol. 5, no. 12
December 1956

FRANKEL, D.

Measurements of the active and reactive power in three-phase systems with three conductors with a single wattmeter. p.58
(ELECTROTHEHICA. Vol. 5, No. 2, Feb. 1957, Rumania)

SO: Monthly List of East European Accessions (EEAL) LC.Vol. 6, No. 12, Dec. 1957
Uncl.

PROTOPOPESCU, M.; PETRESCU, N.; DRIMER, D.; MOROIANU, A.; FRANKEL, D. conf.ing

Semiconducting compound InSb for magnetometric transducers.
Studii cerc metalurgie 6 no.4:375-393 '61.

1. Institutul politehnic cin Timisoara, catedra de electrotehnica
si Uzinele "Electronica" Bucuresti (for Frankel).

FRANKEL, David, ing.,conf.

On a compensation fo the ronequipotentiality of the Hall contacts.
Electronica 9 no.11:407 N '61.

1. Conferentiar la Institutul politehnic, Timisoara.

FRANKEL, David, ing. (Timisoara); DE SABATA, Ioan, ing. (Timisoara)

Measuring fluctuating power and nonsymmetrical power with Hall
generators. Electrotehnica 10 no.11:425-427 N '62.

1. Conferentiar la Institutul Politehnic Timisoara (for Frankel).
21 Sef de lucrari la Institutul Politehnic Timisoara (for De Sabata).

FRANKEL, David, ing. (Timisoara)

      Diagrams of directional relays with Hall generators. Electrotehnica
11 no.1:23-26 Ja '63.

      1. Conferentiar la IPT.

L 49195-65   EWT(1)
ACCESSION NR: AP5015213   EJ/0004/64/000/008/0306/0307

AUTHOR: Frankel, David(Lecturer)(Timisoara); De Sabata, Ioan(Lecturer)(Timisoara)

TITLE: Measuring losses in three-phase networks with a Hall generator by the Joule-
Lenz effect

SOURCE: Electrotehnica, no. 8, 1964, 306-307

TOPIC TAGS: electric measurement, electric effect

Abstract: A brief description of a method which allows the
measurement of the Joule-Lenz effect with a 2 to 4 percent
precision. The Joule-Lenz effect measured in the described
manner is proportional to the Hall tension, so that it can
be telemeasured.
Orig. art has 3 figures and 8 formulas.

ASSOCIATION: Institutul politehnic, Timisoara(Politechnic Institute)

SUBMITTED: 00   ENCL: 00   SUB CODE: EM

NO REF SOV: 001   OTHER: 005   JPRS

Card 1/1

L 10433-66   EWA(j)/EWT(m)/EWP(j)/EWA(b)-2/^   WW/RM   UR

ACC NR: AM5011706   BOOK EXPLOITATION

TSvetkov, V.N.; Eskin, V.Ye.; Frankel', S.Ya.

Structure of macromolecules in solutions (Struktura makromolekul v rastvorakh),
    Moscow, Izd-vo "Nauka," 1964, 719 p. illus., tables, diagm., biblio., index.
    3,800 copies printed.

TOPIC TAGS: macromolecular synthetic polymer, macromolecular structure,
macromolecular dynamic and optic, structure in solution, physical properties

PURPOSE AND COVERAGE: This monograph is devoted to the hydrodynamic and optical
properties of macromolecules. To the latter belong: viscosity, light scattering,
sedimentation, and dynamic double refraction. This book discusses the application
of the indicated investigation methods to a series of concrete and important problems
molecular weight determination, molecular weight distribution, macromolecule sizes,
their configurations, structures, branching, deformability, internal mobility,
stereoregularity and the analysis of the copolymer composition, heterogeneity. The
authors acknowledge the contributions of Baranov, V.G.; Korotkina, O.Z.; Shtennikova,
I.N.; and other co-workers of the Institute of Macromolecular Compounds of the Acad-
emy of Sciences of the USSR (IVS AN SSSR Institut Vysokomolekulyarnykh Soyedineniy
Akademii Nauk SSSR). This book is designed for a wide circle of scientific workers
and engineers working in the field of physics, chemistry, biology, physical chemistry,
and technology of synthetic and biologic polymers, as well as for the teaching staff

Card 1/4   UDC:539.199

L 10433-66

ACC NR: AM5011706

and advanced students at higher educational institutions specializing in the indicated sciences.

TABLE OF CONTENTS [abridged]:

Foreword -- 9
Introduction -- 11
Ch. I. Structural properties and thermodynamic behavior of macromolecules in
   solution -- 14
      1. Principles of the static theory of linear polymer chains -- 14
      2. Some thermodynamic properties of solutions of chain macromolecules -- 44
      3. Structural properties of polyelectrolyte macromolecules and of polymers
         of biologic origin -- 65
Bibliography -- 90

Ch. II. Viscosity -- 93
Bibliography -- 200

Ch. III. Light scattering in solutions of polymers -- 205
      1. Principles of the theory -- 205
      2. Methods of measuring light scattering -- 246
Bibliography -- 270

Card 2/4

L 10433-66

ACC NR: AM5011706

Card 3/4

L 10433-66

ACC NR: AM5011706

Ch. VIII. Double refraction in a flow. Experimental data -- 587
    1. Low molecular weight liquids -- 587
    2. Solutions containing rigid particles or macromolecules -- 595
    3. Solutions of deformable chain molecules -- 620
Bibliography -- 805

Index -- 712

SUBMITTED: 24Nov64   SUB CODE: OC, OC   NO REF SOV: 284

OTHER: 876

    jw
Card 4/4

L 10433-66 EWA(j)/EWT(m)/EWP(j)/EWA(b)-2/T   WW/RM

ACC NR: AM5011706   BOOK EXPLOITATION   UR

TSvetkov, V.N.; Eskin, V.Ye.; Frankel', S.Ya.

Structure of macromolecules in solutions (Struktura makromolekul v rastvorakh),
Moscow, Izd-vo "Nauka," 1964, 719 p. illus., tables, diagm., biblio., index.
3,800 copies printed.

TOPIC TAGS: macromolecular synthetic polymer, macromolecular structure,
macromolecular dynamic and optic, structure in solution, physical properties

PURPOSE AND COVERAGE: This monograph is devoted to the hydrodynamic and optical
properties of macromolecules. To the latter belong: viscosity, light scattering,
sedimentation, and dynamic double refraction. This book discusses the application
of the indicated investigation methods to a series of concrete and important problems:
molecular weight determination, molecular weight distribution, macromolecule sizes,
their configurations, structures, branching, deformability, internal mobility,
stereoregularity and the analysis of the copolymer composition, heterogeneity. The
authors acknowledge the contributions of Baranov, V.G.; Korotkina, O.Z.; Shtennikova,
I.N.; and other co-workers of the Institute of Macromolecular Compounds of the Acad-
emy of Sciences of the USSR (IVS AN SSSR Institut Vysokomolekulyarnykh Soyedineniy
Akademii Nauk SSSR). This book is designed for a wide circle of scientific workers
and engineers working in the field of physics, chemistry, biology, physical chemistry,
and technology of synthetic and biologic polymers, as well as for the teaching staff

Card 1/4   UDC:539.199

L 10433-66

ACC NR: AM5011706   /

and advanced students at higher educational institutions specializing in the indi-
cated sciences.

TABLE OF CONTENTS [abridged]:

Card 2/4

L 10433-66

ACC NR: AM5011706

Card 3/4

L 10433-66

ACC NR: AM5011706

Ch. VIII. Double refraction in a flow. Experimental data -- 587
     1. Low molecular weight liquids -- 587
     2. Solutions containing rigid particles or macromolecules -- 595
     3. Solutions of deformable chain molecules -- 620
Bibliography -- 805

Index -- 712

SUBMITTED: 24Nov64   SUB CODE: OC, OC   NO REF SOV: 284

OTHER: 876

          jw
Card 4/4

FRANKENBERG, B.M., inzh.

Attachments for machining spherical surfaces. Mashinostroitel'
no.10:9-11 O '57.   (MIRA 10:11)
                        (Lathes)

FRANKENBERG, B. Ye.

Frankenberg, B. Ye. "On the combined thoraco-abdominal method of removing the lower
portions of the esophagus and the cardia," Vracheb. delo, 1947,
No. 3, paragraphs 225-32.

SO: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 18, 1949).

1. FRANKENBERG, B. YE.; LITVINENKO, A. N.

2. USSR (600)

4. Actinomycosis

7. Treatment of cervico-facial actinomycosis with massive doses of potassium iodide, Stomatologia, No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

FRANKENBERG,B.Ye., professor; SHVARTS, Ya,Ye. (Odessa)

Isolated lymphogranulomatosis of the stomach. Klin.med., 33
no.11:77-80 N '55.   (MIRA 9:7)

1. Iz vtoroy khirurgicheskoy kliniki (zav.-prof. B.Ye.Frankenberg)
Odesskogo instituta usovershenstvovaniya vrachey imeni M.Gor'kogo
        (HODGKIN'S DISEASE,
          stomach)
        (STOMACH, neoplasms,
          Hodgkin's dis.)

FRANKENBERG, B.Ye., GERLANTS, A.I. (Odessa)

Leiomyoma of the stomach. Klin.med. 36 no.4:88-89 Ap'58 (MIRA 11:5)

1. Iz khirurgicheskogo otdeleniya (zav. - prof. B.Ye. Frankenberg)
i rentgenologicheskogo otdeleniya (zav. A.I. Gerlants) Odesskoy
gorodskoy klinicheskoy bol'nitsy (glavnyy vrach V.M. Levandovskiy).
            (STOMACH NEOPLASMS, diag.
                leiomyoma, x-ray diag.(Rus))
            (LEIOMYOMA, diag.
                stomach, x-ray diag. (Rus))

FRANKENBERG, B.Ye., prof. (Odessa, Primorskiy bul'var, d.3/99); PANOV, V.P., dotsent (Odessa, ul. Petra Velikogo, d.15, kv.3)

Hemangioma of the facial area of the cranium as shown in a radiogram. Vop.onk. 5 no.2:188-192 '59. (MIRA 12:6)

1. Iz chelyustno-litsevoy kliniki (zav. - prof. B.Ye.Frankenberg) i rentgenovskogo otdela (zav. - dotsent V.P.Panov), Odesskogo nauchno-issledovatel'skogo stomatologicheskogo instituta (dir. - starshiy nauchnyy sotrudnik M.N.Kukhareva).
　　　　　　　　(CRANIUM, neoplasms
　　　　　　　　　　　angioma of facial cranium, x-ray features
　　　　　　　　　　　(Rus))
　　　　　　　　(ANGIOMA, manifest.
　　　　　　　　　　　cranium, facial area, x-ray features (Rus))

FRANKENBERG, B.Ye.; LEBEDINSKIY, I.R.

Maduromycosis. Zhur.mikrobiol.epid.i immun. 30 no.7:113-118 Jl '59.
(MIRA 12:11)

1. Iz Odesskoy gorodskoy klinicheskoy bol'nitsy.
(MADUROMYCOSIS)

FRANKENBERG, B.Ye., (Odessa, Primorskiy bul'var, 3); GISR...Y, ...A.
(Odessa, V-1, ulitsa Lenina, 11, kv.19)

Multiple malignant tumors of the abdominal cavity successfully
treated by repeated operations; one observation.   ...g. Onk. 9
no.9:78-80 '63.   (MIRA 17:9)

1. Iz khirurgicheskogo otdeleniya (zav.- B.Ye. ...r...nberg)
Odesskoy gorodskoy klinicheskoy bol'nitsy No.1 ...gl...nyy vrach-
A.S. Teslik).

FRANKENBERG, L.Ye.

Successful suture of double wound of the heart. Khirurgiia no.5:
69 My '54.   (MLRA 7:7)

1. Iz gospital'noy khirurgicheskoy kliniki Azerbaydzhanskogo
meditsinskogo instituta.
        (HEART, wounds and injuries,
          *surg., suture of double wds)
        (WOUNDS AND INJURIES,
          *heart, suture of double wds.)

FRANKENBERG, L.Ye.

Unusual case of subastragalar dislocation of the foot. Ortop.
travm.protez.,Moskva no.1:75 Ja-F '55.   (MLRA 8:10)

1. Iz kafedry gospital'noy khirurgii (zav.--prof. M.A.Mir-
Kasimov) Azerbaydzhanskogo gosudarstvennogo meditsinskogo
instituta.
          (FOOT, dislocations,
               subastralgal)
          (DISLOCATIONS,
               subastralgal)

FRANKENBERG, V.Ye., prof.; KUPCHIK, B.M.

Preventive stabilization of arterial pressure in high spinal
anesthesia. Khirurgiia 37 no.4:70-75 '61.   (MIRA 14:4)

1. Iz khirurgicheskogo otdeleniya (zav. - prof. B.Ye. Franken-
berg) Odesskoy gorodskoy klinicheskoy bol'nitsy (glavnyy
vrach A.S. Teslik).
         (SPINAL ANESTHESIA)   (HYPOTENSION)

Frujmimb....., ...

"Results Of The Scientific Zoological Expedition Of The National Museum In Prague To Turkey. Pt. ... Isopoda." p. 1. (Sbornik. Acta Entomologic.. Vol. 26, ...o. 370, 1948-..., Praha.)

Vol. ., ...o. ..

Sc: Lonthly List of East European Accession., Library of C......, ... 195/, Vic.

FRANKENBERGER, ZDENEK.

Purkynovy prednas ky z embryologie pred 100 lety.

Praha, Czechoslovakia, Zdravotnicke nakl., 1950.   57 p.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 11, Nov. 1959
Uncl.

FRANKENBERGER, Z.

Prof. Dr. F. K. Studnicka. 25. XI 1870-25. XI 1950. Cas. lek. cesk. 89 no.47:1332-1333 24 Nov 50.   (CIML 20:4)

FRANKENBERGER, Z.

Milan Hasek's Vegetativni hybridisace (Vegetative Hybridization); A book review;
also, a reply by the author. p. 118
CESKOSLOVENSKA BIOLOGIE, Vol. 4, No. 3, Feb. 1955

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9, Sept. 1955
                                                                    Uncl.

FRANKENBERGER, ZDENEK

"Comparative embryology and phylogeny: a university textbook.   English
and Russian summaries."

Praha, Czechoslovakia, Statni zdravotnicke nakl., 1956, 66 p.

SVEJCAR, J. Prof. MUDr.; FRANKENBERGER, Z., MUDr.; BURIAN, P., akademik.

Teratomatous effects of adrenal cortex hormones. Cesk. pediat.
12 no.8:711-713 5 Aug 57.

1. Detska klinka v Praze, prednosta prof. MUDr J. Svejcar.
        (ADRENAL CORTEX HORMONES, inj. eff.
                multiple abnorm. in newborn boy caused by corticosteroid
                ther. in pregn. (Cz))
        (INFANT, NEWBORN, abnorm.
                multiple, caused by corticosteroid ther. during pregn.
                (Cz))
        (PREGNANCY
                corticosteroid ther. of mother causing multiple abnorm. in
                newborn boy (Cz))

FRANKENBERGER, Zd.; ROZSIVALOVA, E.

Unknown dissertation of Jan Bohac. Cas. lek. cesk. 97 no.29:914-916
11 July 58.

1. Zd. F., Praha 2, Katerinska 32.
    (BIOGRAPHIES,
          Bohad, Jan (Cz))

FRANKENBERGER, ZDENEK

Stejnonozci suchozemsti; Oniscoidea. (1 vyd.)

Praha, Czechoslovakia, Nakl. Ceskoslovenske akademie ved, 1959. 212 p.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, August 1959
Uncl.

FRANKENBERGER, Zdenek, prof., dr.

3d National Conference of Czechoslovak Morphologists in Brno; a
report. Cz.morfologie 8 no.1:83-84 '60.   (EEAI 9:5)
          (CZECHOSLOVAKIA--MORPHOLOGY)

FRANKENBERGER, Zdenek

Modeling of the external form of the Wolffian body. Cs morfologie
8 no.2:114-122 '60.   (EEAI 9:8)

1. Institut d'embryologie de la faculte de medicine de l'Universite
Charles, Prague.
       (WOLFFIAN BODY)

FRANKENBERGER, Z., prof., dr.

      Jan Evangelista Purkyne, histologist. Cas.lek.cesk 99 no.50:1562-1565
9 D '60.

         (BIOGRAPHIES)   (HISTOLOGY hist)

FRANKENBERGER, Z.

The mechanism of shedding antlers in the deer. Cs morfologie 9 no.1:
41-45   '61.   (EEAI 10:5)

1. Embryologicky ustav lekarske fakulty University Karlovy, Praha.

(ANTLERS)   (DEER)

FRANKENBERGER, Z.

Academician Jan Wolf on his 70th birthday. Cesk. morf. 12 no.4:
339-346 '64.

L 58776-65

ACCESSION NR: AP5020175   CZ/0049/64/000/010/0792/0799

AUTHOR: Frankenberger, Zdenek (Cernosice)

TITLE: Orthometopon planum B. L. (Isopodes - Oniscoides), an interesting member of the fauna of Slovakia

SOURCE: Biologia, no. 10, 1964, 792-799

TOPIC TAGS: zoology, biologic ecology

Abstract: The geographical zones where Orthometopon planum B.L. is found are interesting: the valley of the river Rhone, western Alps and the Apennine peninsula, with Istria, and the other zone is that Slovakia and Western Hungary. Although there is no geographical continuity between the 2 zones, the species is the same in both zones. The species dates probably to the Tertiary period, before the formation of the Alps. Similarity between the occurrence of the orthometopon and that of Dicronolasma opilionoides L. Koch, and that of D. scabrum Herbst is discussed. Orig. art. has 12 figures.

Card 1/2

L 58776-65

ACCESSION NR: AP5020175   0

ASSOCIATION: none

SUBMITTED: 28Apr64   ENCL: 00   SUB CODE: LS

NO REF SOV: 000   OTHER: 000   JPRS

Card 2/2

FRANKENSTEIN, E., inz.   (Glashutte, German Democratic Republic)

The Automat self-winding watch. Jemna mech opt 9 no.10:304-308
O '64.

CHERKASHIN, Ye.Ye.;KRIP'YAKEVICH, P.I.;FRANKEVICH, D.P.

Ternary solid solutions in the system Cu - Mg - Cd. [with summary in English]. Dop. AN URSR no.1:33-37 '57.   (MIRA 10:4)

1. L'vivs'kiy dershavniy universitet im. Iv. Franka. Predstaviv aka-demik AN URSR O. I. Brods'kiy.
        (Copper-manganese-cadmium alloys)

L 18097-63   EWP(q)/EWT(m)/BDS   AFFTC/ASD   JD/JG
ACCESSION NR: AP3004096   S/0070/63/008/004/0595/0599

AUTHORS: Kripyakevich, P. I.; Gladyshevskiy, Ye. I.; Zarechnyuk, O. S.;
Yevdokimenko, V. I.; Zalutskiy, I. I.; Frankevich, D. P.

TITLE: Some patterns in the crystal chemistry of intermetallic compounds of rare-
earth metals

SOURCE: Kristallografiya, v. 8, no. 4, 1963, 595-599

TOPIC TAGS: crystal chemistry, rare earth , morphotropic series, isostructural
series, lattice, atomic number

ABSTRACT: The authors have used data from the literature as well as their own
experimental work to study the intermetallic compounds of rare-earth metals. The
aspects studied include isostructure, morphotropy, dependence of lattice constants
on atomic number, and the formation of tertiary compounds. In view of inadequate
data on isostructural compounds, the exact character of such series cannot be
predicted, but it is thought unlikely that complete isostructural series will be
found for the rare earths (i.e., series including all the rare earths). The
compounds will most probably form a morphotropic series of identical compositions

Card 1/2

L 18097-63
ACCESSION NR: AP3004096

5

or a morphotropic series of varying compositions. In most morphotropic series, beginning with some particular rare earth, a certain structural type gives way to another, as occurs at the boundary between the cerium and yttrium groups. Such series are commonly polymorphous. Successive changes in atomic number lead in some series to changes in both composition and structure. The atomic radius, which does not change consistently with increase in atomic number, is an effective characteristic in determining isostructural and morphotropic series. Compounds of certain structural types that are absent in double systems may show up in tertiary or quaternary systems. An example is the existence of compounds of Th_2Zn_{17} and $ThMn_{12}$ in the system Ce-Mn-Al, although they are absent in the system Ce-Mn. They exist in the related double systems Ce-Fe and Th-Mn. Orig. art. has: 1 figure and 1 table.

27

ASSOCIATION: L'vovskiy gosudarstvenny*y universitet im. L Franko (L'vov State University)

SUBMITTED: 14Mar63   DATE ACQ: 15Aug63

SUB CODE: PH   NO REF SOV: 014

ENCL: 00

OTHER: 007

Card 2/2

GLADYSHEVSKIY, Ye.I.; KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.

Crystalline structure of rare earth metal compounds containing beryllium(RBe_{13}). Kristalografiia 8 no.5:788-789 S-O '63.

(MIRA 16:10)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.

ZABOLOTNYY, I.I. [deceased]; FRANKEVICH, D.P.

Heat effect in the dissolution of zinc in acids. Zhur.fiz.khim.
37 ~~~~ 1664 Ag '63.   (MIRA 16:9)

1. Ukrainskiy poligraficheskiy institut im. I.F.Fedorova, L'vov.
      (Zinc) (Acids) (Heat of solution)

L 2?0h1-45   EMT(m)/EWP(t)/EWP(b)   IJP(c)   JD/WG/RLF

ACC NR   AT4048700   S/0000/64/000/000/0149/0150

AUTHOR: Glady*shevskiy, Ye. I.; Kripyakevich, P.I.; Frankevich, D.P.

TITLE: X-ray studies of the structure of alloys of rare earth metals and yttrium with beryllium

SOURCE: Vsesoyuznoye soveshchaniye po splavam redkikh metallov, 1963. Voprosy teorii i primeneniya redkozemel'ny*kh metallov (Problems in the theory and use of rare-earth metals); materialy* soveshchaniya. Moscow, Izd-vo Nauka, 1964. 149-150

TOPIC TAGS: rare earth metal alloy, yttrium alloy, beryllium alloy, x-ray analysis, lattice constant, rare earth metal valence, crystal structure

ABSTRACT: These studies dealt with beryllium-rich alloys (92.3 at .% Be) with all the rare earth metals except Pm and Gd, prepared from highly purified metals in a Tamman furnace in argon. Compounds of the $NaZn_{13}$ type were found in each system. The lattice constants are reported. The value "a" was lower for $CeBe_{13}$ than for $PrBe_{13}$, while that for $EuBe_{13}$ and $YbBe_{13}$ was intermediate between the corresponding values of the adjoining elements. This proves that the cerium atoms in the beryllium crystals have a tendency to form R^{+4} ions (similar to compounds with the transition metals) while europium

Card   1/2

L ?50l1-65

ACCESSION NR: AT4048706

and ytterbium tend to R^{+3} ion formation. Thus the behavior of beryllium in alloys with rare earth metals differs from that of Mg, Al, Si and Ge, in which Ce forms R^{+3} and Eu and Yb form R^{+2} ions. Data found in the literature on the crystal structure of these sys- ... are reported. A phase diagram (not shown) was plotted only for the system Y-Be. ... to the diagram, YBe_{13}, formed immediately from the melt ... the s ... compound in this system. Orig. art. has: 1 table.

ASSOCIATION: none

SUBMITTED: 13Jun64   ENCL: 00   SUB CODE: MM

                                 OTHER: ...
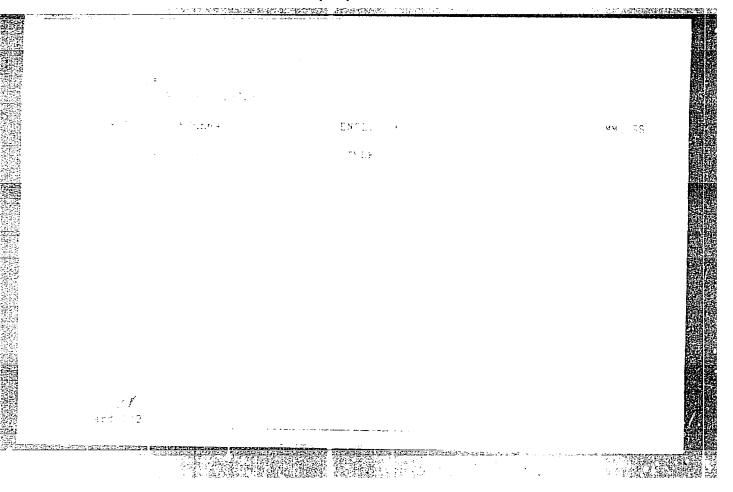
Card   2/2

TESLYUK, M.Yu.; KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.
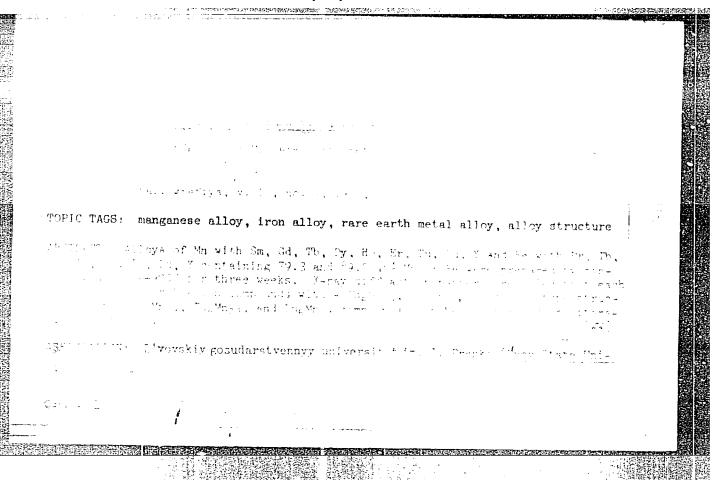
New Laves phases containing manganese. Kristallografiia 9 no.4:
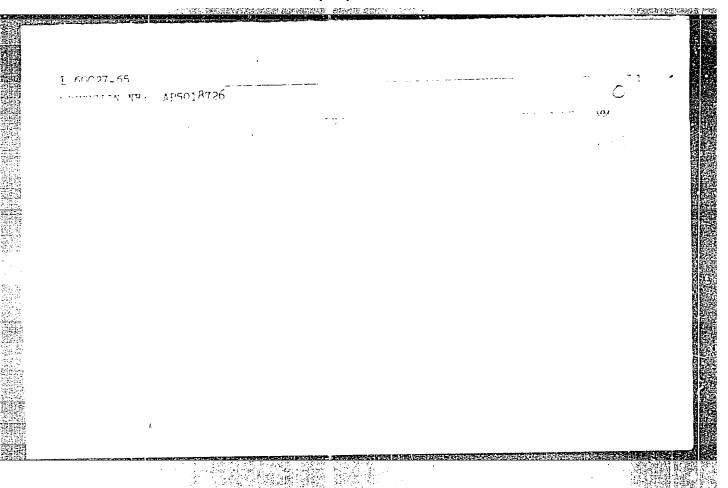558-559 Jl-Ag '64.   (MIRA 17:11)
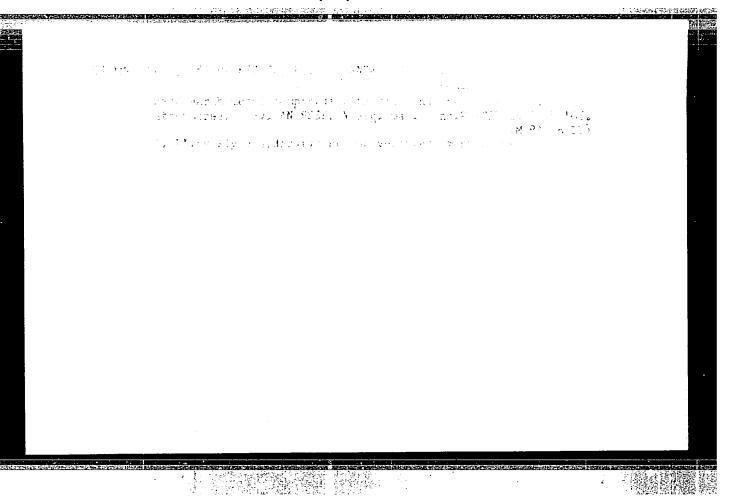
1. L'vovskiy gosudarstvennyy universitet imeni Franko.

ACCESSION NR: AP5013723

AUTHOR: Kripyakevich, P. I.; Teslyuk, M. Yu.; Frankevich, D. P.

TITLE: New $MgCu_2$-type compounds in alloys of rare earth metals with Fe, Co and Ni

SOURCE: Kristallografiya, v. 10, no. 3, 1965, 422-423

TOPIC TAGS: rare earth element, iron alloy, cobalt alloy, nickel alloy

ABSTRACT: X-ray analysis was used to investigate high purity $TbFe_2$, $LuFe_2$, $YbCo_2$, $LuCo_2$, $TbNi_2$ and $LuNi_2$ alloys prepared in an arc furnace with a cooled copper ... He atmosphere. It was established that all the ... basically ... having a cubic body-centered ... ... that these compounds belong to the $MgCu_2$ type. This conclusion is confirmed ... comparison of $LuFe_2$ line intensity with that ...

... L'vovskiy gosudarstvennyy universitet im. I. Frank (L'vov State ...)

Card 1/2

TOPIC TAGS: manganese alloy, iron alloy, rare earth metal alloy, alloy structure

Alloys of Mn with Sm, Gd, Tb, Dy, H , Er, Tu, , Y and e th r Th,

  , Y ntaining 79.3 and 9.   at   containing three weeks. X-ray diff a

 L'vovskiy gosudarstvennyy univers

I 60027-65

ACCESSION NR. AP5018726

KRIPYAKEVICH, P.I.; FRANKEVICH, D.P.; VOROSHILOV, Yu.V.

Compounds with structures of the Th_6Mn_{23} type in rare-earth metal alloys with manganese and iron. Porosh.met. 5 no.11:55-61 N '65.   (MIRA 18:12)

1. L'vovskiy gosudarstvennyy universitet imeni I.Franko.
Submitted March 9, 1965.

L 22696-66   EWP(e)/EWT(m)/EWP(t)/EWP(k)   IJP(c)   JD/JG/WB

ACC NR: AP6007282   (A)   SOURCE CODE: UR/0226/66/000/002/0010/0014

AUTHOR: Frankevich, D. P.

ORG: Lvov State University im. I. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Preparing rare earth metal powders and obtaining their alloys by the powder metalurgy method

SOURCE: Poroshkovaya metallurgiya, no. 2, 1966, 10-14

TOPIC TAGS: metal powder, powder metalurgy, nonferrous metal alloy, melting point, evaporation, metal oxidation, quartz crystal, argon, rare earth metal, sintering

ABSTRACT: A method is developed for the preparation of chemically active or pyrophoric metal powder by means of mechanical granulation in a medium of a liquid which does not interact with metals or their powders. To obtain metal alloys characterized by high vapor pressure and a high evaporation rate at their melting point, the author suggests a method excluding oxidation or evaporation of the components, consisting of sintering of pressed brickets in glass or quartz tubes in an argon atmosphere under excessive pressure of the latter. The author expresses thanks to: Ye. Ye. Cherkashin, Professor, Doctor of Chemical Sciences, and P. I. Kripyakevich and Ye. I. Gladyshevskiy, Docents, Candidates of Chemical Sciences for their valuable instructions and advices. Orig. art. has: 2 figures. [Based on author's abstract.]

SUB CODE: 11/ SUBM DATE: 17Apr65/ ORIG REF: 007/ OTH REF: 002/

Card 1/1

ACC NR: AP6019836   (N)   SOURCE CODE: UR/0370/66/000/001/0153/0155

AUTHOR: Zarechnyuk, O. S. (L'vov); Frankevich, D. P. (L'vov); Kripyakevich, P. I. (L'vov)
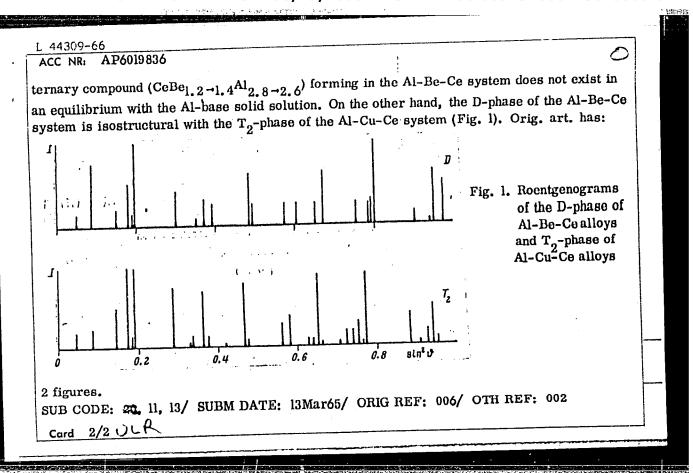
ORG: none

TITLE: Radiographic investigation of the part of the Al-Be-Ce system in the 0-25% Ce region

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 153-155

TOPIC TAGS: phase analysis, x ray analysis, ternary alloy, aluminum base alloy, beryllium, cerium, intermetallic compound

ABSTRACT: Specimens of 34 ternary Al-Be-Ce alloys melted in corundum crucibles (helium atmosphere) within electric resistance furnaces and quenched from 600°C were subjected to x-ray phase analysis in the region of Ce concentrations of from 0 to 25 at.%. Findings: aside from Be itself only two binary compounds, $CeAl_4$ and $CeBe_{13}$ exist in an equilibrium with the Al-base solid solution. In the presence of 20 at.% Ce the ternary compound of variable composition $CeBe_{1.2 \to 1.4}Al_{2.8 \to 2.6}$ (D-phase) forms in the Al-Be-Ce system; this compound exists in an equilibrium with the binary compounds $CeBe_{13}$, $CeAl_4$ and $CeAl_2$ but it does not exist in an equilibrium with the Al-base solid solution. These findings make it possible to compare the Al corner of the Al-Be-Ce system with the corresponding parts of certain other Al-X-Ce systems, namely, systems with Cu, Mn and Si. Thus, ternary intermetallic compounds exist in all these systems but, by contrast with the systems Al-Cu-Ce, Al-Mn-Ce and Al-Si-Ce, the

Card   1/2   UDC: 669.017.13

L 44309-66

ACC NR: AP6019836

ternary compound $(CeBe_{1.2 \to 1.4}Al_{2.8 \to 2.6})$ forming in the Al-Be-Ce system does not exist in an equilibrium with the Al-base solid solution. On the other hand, the D-phase of the Al-Be-Ce system is isostructural with the T_2-phase of the Al-Cu-Ce system (Fig. 1). Orig. art. has:

Fig. 1. Roentgenograms of the D-phase of Al-Be-Ce alloys and T_2-phase of Al-Cu-Ce alloys

2 figures.

SUB CODE: 20, 11, 13/ SUBM DATE: 13Mar65/ ORIG REF: 006/ OTH REF: 002
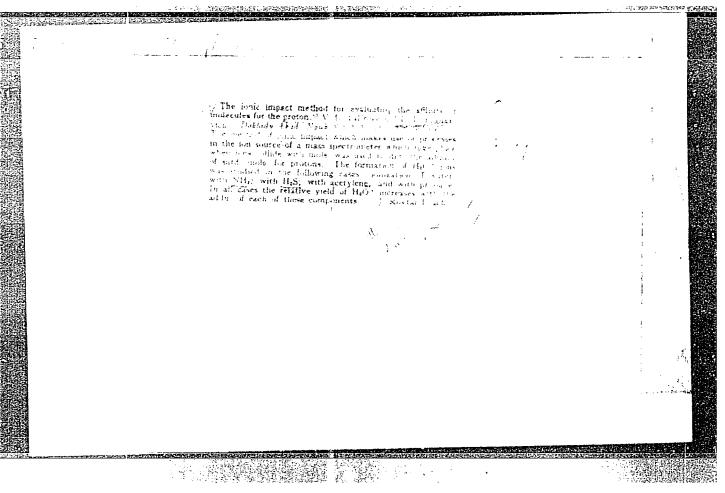
Card 2/2

FRANKEVICH YE. L.
USSR/Nuclear Physics /- Instruments and Installations. Methods of Measurement   C-2
and Investigation

Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33839

   Author : Tal'roze, V. L., Frankevich, Ye. L.

Institution : None

    Title : On the Temperature of Gas in Ion Source of Mass Spectrometer

Original
Periodical : Zh. tekhn. fiziki, 1956, 26, No 3, 497-498

Abstract : Using a procedure analogous to that used by Berry (C. E. Berry,
Phys. Rev., 1950, 78, 597), the authors have investigated the
initial velocity distribution of ions in the ionization region and
determined the temperature of the gas in the ion source of a Nir
type in the MS-1 mass spectrometer. It was found that the ion
distribution obeys the Maxwell law.

Card 1/2

USSR/Nuclear Physics - Instruments and Installations. Methods of
Measurement and Investigation

C-2

Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33839

Next, the authors confirm the conclusions previously made
(Referat Zhur - Fizika, 1956, 21916) that the gas has full op-
portunity to enter into thermal equilibrium with the anode box
of the ion source. Consequently, its temperature equals the
temperature of the rear wall of the box, which can be measured
with the aid of a thermocouple. The calculated value of the
gas temperature, obtained from the dispersion of the initial
energies (560 ± 25° C) agrees within the measurement error with
the value measured directly with a thermocouple.

Card 2/2

The ionic impact method for evaluating the affinity of molecules for the proton.[...] The method of ionic impact which makes use of processes in the ion source of a mass spectrometer [...] when one slide with node was used to [...] of said node for protons. The formation of H_3O^+ was studied in the following cases: ionization of water with NH_3; with H_2S; with acetylene, and with [...] In all cases the relative yield of H_3O^+ increases with the [...] of each of these components. [...]

/ FRANKEVICH, YE L

AUTHOR: Frankevich, Ye. L., and Tal'roze, V. L.   120-2-14/37

TITLE: A Mass-spectrometer for the Investigation of Processes
occurring during the collision of Electrons and Ions
with Molecules. (Mass-Spektrometr dlya Issledovaniya
Protsessov, Proiskhodyashchikh pri Stolknoveniyakh
Elektronov i Ionov s Molekulami.)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.2,
pp. 48 - 53 (USSR).

ABSTRACT: The method of electron bombardment is one of the most
important for determining the ionisation potentials and
binding energies in molecules. Additional information
may be obtained by the ion bombardment method proposed by
the author in Reference 1. The effect of the electron
energy spread in spectrometers as used in such measurements
may be compensated by the so called method of "Quasimono-
chromatisation" of electrons as proposed by Fox et al.
(Ref. 3). In the present article a mass-spectrometer is
described which can measure accurately the ionisation
potentials, (using the method of Ref. 3) and the initial
ion energy using the method of retarding potentials (some
of the results obtained have been published in Ref. 1).
Card 1/3 The ionising electrons are made quasi-monochromatic by the

120-2-14/37

A Mass-spectrometer for the Investigation of Processes Occurring During the Collision of Electrons and Ions with Molecules.

introduction into the electron gun a retarding electrode, the potential of which is modulated by a small amplitude alternating voltage at 10kc/s and the ion current is amplified by a resonant amplifier tuned to the same frequency. A detailed description of the instrument is given together with the circuit of the associated pulse generator, of the ionising voltage supplies, and of the high voltage stabilised sources. Results, in the form of graphs, are given for the incidence of moleculer ions of NH_3^+, H_2S^+, $C_3H_8^+$, $C_2H_2^+$, H_2O^+ and H_3O^+ occurring during various secondary processes as described in Reference 1. A drawing of the tube of the mass-spectrometer, a schematic drawing of the ion source arrangement, a circuit diagram of the pulse generators and of the stabilisation of ionising voltage and four graphs giving the ion occurrence against the electron energy and the ion currents against the retarding potential are given. L.L. Dekabrun has collaborated in designing the electronic part of the mass-spectrometer. There are eleven references, 2 of which are Slavic.

Card 2/3

120-2-14/37

A Mass-spectrometer for the Investigation of Processes Occurring During the Collision of Electrons and Ions with Molecules.

SUBMITTED: November, 19, 1956.

ASSOCIATION: Institute of Physical Chemistry of the Academy of Sciences of the USSR. (Institut Khimicheskoy Fiziki AN SSSR.)

AVAILABLE: Library of Congress.

Card 3/3

FRANKEVICH, YE. L.

USSR/Atomic and Molecular Physics - Physics of the Molecule   D-2

Abs Jour   : Ref Zhur - Fizika, No 1, 1958, 703

Author   : Frankevich, Ye.L., Tal'roze, V.L.
Inst   : —
Title   : Correction to the Article "Mass Spectrometer for Investiga-
             tion of Processes that Take Place Upon Collision of Elec-
             trons and Ions with Molecules".

Orig Pub   : Pribory i tekhn. eksperimenta, 1957, No 3, 120

Abstract   : No abstract.

Card 1/1

FRANKEVICH, Ye. L., Cand of Phys-Math Sci -- (diss) "Mass-spectrometric study of elemental iono-molecular processes in a gas phase." Moscow, 1957, 12 pp (Institutes of the Chemistry of Physics, AS USSR), 100 copies (KL, 30-57, 108)

AUTHCRS: Frankevich, Ye.L., Tal'roze, V.L.   62-12-19/20

TITLE: Letters to the Editor (Pis'ma redaktoru). The Determination of the Energies of the Dissociation C_2H-H and C_2H_3 by the Ion Impact Method (Otsenka energiy dissotsiatsii C_2H-H i C_2H_3 -H metodom ionnogo udara).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1957, Nr 12, pp. 1501-1501 (USSR)

ABSTRACT: The method developed by the authors already previously [1], which was then later applied [2,1] for the determination of the relationship with the proton H_2O, CH_3OH and C_2H_5 CH, was now used for the determination of the dissociation of the compound C - H in C_2H_2 and C_2H_4. The investigation of the impact between the ions $C_2H_2^+$ and the H_2O molecules as well as of the ions CH_3OH^+ with the C_2H_2 molecules, which was carried out with a special mass spectrometer, showed that the reactions: 1) $C_2H_2^+ + H_2O = H_3O^+ + C_2H+Q_1$ and accordingly

2) $CH_3 OH^+C_2H_2 = CH_3 OH_2^+ + Q_2 + $ (where Q denotes the

Card 1/2   heat effect of the reaction) did not manifest themselves spectro-

Letters to the Editor. The Determination of the Energies
of the Dissociation C_2H-H and C_2H_3 by the Ion Impact Method

62-12-19/20

metrically. Therefore, $q_1 < 0$ and $q_2 > 0$. As much as $J(C_2H_2) = 11.43$ eV, $J(H) = 13.59$ eV P H_2O 167 ccal/mol [1], $J(H_3CH) = 10.95$ eV, and P CH_3OH 177 ccal/mol [2]; the following conclusions may be drawn from reaction 1): D $(C_2H - H) > 117$ ccal/mol; from reaction 2): D $(C_2H - H) > 116$ ccal/mol. Spectrometrically it was found that D $(C_2H-H) < 121$ ccal/mol. In the final result D $C_2H-H) = 119\pm2$ ccal/mol is obtained. At the ion impact $C_2H_4{}^+$ with the molecules H_2O no reaction was found to occur. 3) $H_2O + C_2H_4{}^+ = H_3O{}^+ + C_2H_3 + Q_3$. Therefore $Q_3 < 0$. The application of the quantities $J(C_2H_4) = 10.62$ eV, $J(H)$ and P_{H_2O} leads to the inequation: D $(C_2H_3 - H) > 97$ ccal/mol. There are 4 references, 3 of which are Slavic.

ASSOCIATION: Chemical-Physical Institute AN USSR (Institut khimicheskoy fiziki Akademii nauk SSSR).

SUBMITTED: October 10, 1957

AVAILABLE: Library of Congress

Card 2/2   1. Chemistry   2. Mathematical analysis

FRANKEVICH, Ye L.

Dissertations. Branch of Chemical Sciences, Jul-Dec 1957.
Vest. Ak Nauk SSSR, No. 4, 1958, pp. 117-8

At the Inst. for Chemical Physics dissertation defended for degree Cand.
Physico-Math. Sci.
    FRANKEVICH, Ye. L. - Mass-Spectrometrical Investigation of Elementary Ionic-
Molecular Processes in the Gas Phase.

At the Radium Institute im V. G. Khlopin the following Dissertations for the
degree of a Candidate of Physico-Mathematical Sciences were defended:
    GROMOV, K. Ya. - Conversion Electrons of Lutetium and Thulium Isotopes Deficient
in Neutrons.

    LOZHKIN, O. V. - Multi-Charged Particles in Nuclear Fissions Caused by Protons
with an Energy of 300-600 MeV.

AUTHORS: Frankevich. Ye. L., Tal'roze, V. L.   20-119-6-34/56

TITLE: On the Affinity of Hydrogen and Limit Hydrocarbons to a Proton
              (O srodstve k protonu vodoroda i predel'nykh uglevodorodov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 119, Nr 6,
              pp. 1174 - 1176 (USSR)

ABSTRACT: The affinity of the molecules P to a proton is a very important
              thermochemical constant. This work gives the results of the ex-
              periments on the determination of the affinity of hydrogen,
              methane, ethane, and propane with regard to a proton by the method
              of the ion impact was worked out by the authors (Reference 7).
              The experiments on the discovering of the reactions leading to
              the formation of the secondary ions H_3^+ were made by means of the
              mass spectrograph MC-1a. The energy of the ionizing electrons
              was 5o eV. In these experiments the following reactions under
              variation of the pressure of the gases were investigated:

              (1) $H_2^+ + H_2 \rightarrow H_3^+ + H$ (2) $H_2^+ + C_2H_2 \rightarrow H_3^+ + C_2H$

              (3) $H_2 + C_2H_2^+ \rightarrow H_3^+ + C_2H$ (4) $H_2^+ + C_2H_6 \rightarrow H_3^+ + C_2H_5$

              (5) $H_2 + C_2H_6^+ \rightarrow H_3^+ + C_2H_5$

Card 1/3

On the Affinity of Hydrogen and Limit Hydrocarbons to   2o-119-6-34/56
·a Proton

It was shown that the addition of acetylene to the ion source which contains hydrogen under a pressure of $\sim 10^{-4}$ torr does not increase the yield of the ions H_3^+. On these conditions the ions H_3^+ only form in the process (1). But the addition of ethane to the ion current on analogous conditions intensifies the current of the ions H_3^+. Therefore besides the process (1) at least one of the processes (4) or (5) might be realized. The heat effect of the mass-spectrometrically detectable ion-molecule reactions is positive or equal to zero, but the heat effect of the reactions which mass-spectrometrically cannot be detected is negative. First the authors describe some inequalities for the limiting values of the affinity to the proton. Thus is found 61 kcal/mol $\leqslant P_{H_2} < 79$ kcal/mol. The mean value from these two values is $P_{H_2} = 70 \pm 9$ kcal/mol. All further experiments were made by a special mass spectrometer with increased sensitivity and accuracy. The reactions used for the determination of the affinity of the methane molecule are written down. T en

Card 2/3

On the Affinity of Hydrogen and Limit Hydrocarbons to   2o-119-6-34/56
·a Proton

inequalities for the numerical values of the proton affinity
of methane, ethane, and propane are written down. The great
difference found in the proton affinity of methane and its
homologs must be explained theoretically yet. There are 3 fig-
ures and 13 references, 6 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute
of Chemical Physics AS USSR)

PRESENTED: October 24, 1957, by V. N. Kondrat'yev, Member, Academy of
Sciences, USSR

SUBMITTED: October 21, 1957

Card 3/3

FRANKEVICH, Ye-L

21(8)   p.3   PHASE I BOOK EXPLOITATION   SOV/1140

. Vsesoyuznoye soveshchaniye po radiatsionnoy khimii. 1st, Moscow,1957.

Trudy (Transactions of the First Conference on Radiation Chemistry)
    Moscow, Izd-vo AN SSSR, 1958.   330 p. 4,000 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Otdeleniye khimicheskikh
    nauk, and U.S.S.R. Ministerstvo khimicheskoy promyshlennosti.

Editorial Board: Bakh, N.A. Professor (resp. ed.); Medvedev, S.S.,
    Corresponding Member, Academy of Sciences, USSR; Veselovskiy, V.I.,
    Professor, Dolin, P.I., Doctor of Chemical Sciences; Miller, N.B.,
    Candidate of Chemical Sciences; Tsetlin, B.L., Candidate of Chemical
    Sciences (Secretary). Eds. of Publishing House: Trifonov, D.N.
    and Bugayenko, L.T.; Tech. Ed.: Moskvicheva, N.I.

PURPOSE: This book publishes the reports of the First All-Union Con-
    ference on Radiation Chemistry in Moscow, March 25 - 30.

COVERAGE: This collection includes fifty-seven reports and follow-up
    discussions of each sub-group of reports classified as follows:

Card 1/15

Transactions of the First (Cont.)   SOV/1140

    1) primary functions in radiation-chemical processes,
    2) radiation chemistry of water solutions (inorganic and
       organic systems),
    3) radiation-electrochemical processes,
    4) the effect of radiation on substances which take part in
       biochemical processes,
    5) radiation chemistry of simple organic systems,
    6) radiation effects on polymers, and
    7) sources of radiation.

According to the editors, the discussions reveal differences
in points of view of Soviet scientists on various problems of
radiation chemistry; specifically, the mechanism of the action
of radiation on concentrated water solutions, the practical
importance of radiation-galvanic phenomena, the mechanism of
the action of radiation on polymers, etc. The editors also
note that the conference revealed inadequate development in
some important areas of radiation chemistry, particularly the
theory of initiation of radiolysis, and the action of radiation
on solid bodies.

Card 2/15

Transactions of the First (Cont.)

TABLE OF CONTENTS:

Card 3/15

Transactions of the First (Cont.) SOV/1140

PART II. RADIATION CHEMISTRY OF WATER SOLUTIONS
(INORGANIC AND ORGANIC SYSTEMS)

Card 4/15

Transactions of the First   (Cont.)   SOV/1140

Card 5/15

Transactions of the First (Cont.)   SOV/1140

Card 6/15

Transactions of the First (Cont.)   SOV/1140

Shekhtman, Ya.L. and Ratner, T.G.   Kinetics of Discoloration of
    a Water Solution of Methylene Blue Under the Action of X-rays   106

Card 7/15

Transactions of the First (Cont.)   SOV/1140

Lantratov, M.F., Manoylov, V.Ye and Myazdrikov, O.A. Beta-   139
    Element

Kolotyrkin, Ya.M., Bune, N.Ya. and Tyurikov, G.S. Electrochemi-
    cal and Corrosion Behavior of Steel and Nickel Electrodes
    Subjected to Gamma Radiation   143

Fokin, M.N., Matveyeva, T.V., Tomashov, N.D. Byalobzheskiy, A.V.
    and Val'kov, V.D. The Influence of Electron Radiation on
    the Corrosion of Iron, Stainless Steel and Aluminum in
    Sodium Chloride Solutions   150

Rosenfel'd, I.L. and Oshe, Ye. K. The Change of Electrochemical
    Activity of Metals Under the Influence of Radiation   156

Card 8/15

Card 10/15

Transactions of the First (Cont.)   SOV/1140

Card 11/15

Transactions of the First (Cont.)   SOV/1140

PART VI. THE EFFECT OF RADIATION ON POLYMERS

Card 12/15

Transactions of the First (Cont.)   SOV/1140

Card 13/15

Transactions of the First (Cont.)   SOV/1140

Card 14/15

Transactions of the First (Cont.)   SOV/1140

Glazunov, P.Ya. and Kuz'min, M.G. Obtaining Electron-impulse
    Radiation in a Straight Accelerator Tube   324

AVAILABLE: Library of Congres (QD601.A1V82,1., 1957)

Card 15/15

5(0), 24(7)   SOV/63-4-2-4/39

AUTHORS: Lavrovskaya, G.K., Candidate of Chemical Sciences, Skurat, V.Ye.,
              Tal'roze, V.L., Frankevich, Ye.L., Candidates of Physico-Mathematical
              Sciences

TITLE: Application of Mass-Spectroscopy for Chemical Analysis

ABSTRACT: Mass-spectroscopy employs two methods: a static and a dynamic method.
              The first uses electric and magnetic fields for the separation of ions,
              the second alternating fields. Molecular mass-spectral analysis is
              applied to substances which are easily evaporated, e.g. alcohols, al-
              dehydes, organic acids. Multi-atomic molecules show a great number of
              spectral bands. To avoid this difficulty, ionization by low-energy
              electrons is recommended $\underline{/}$ Ref 5-8 $\underline{/}$. Group analysis is made use of
              in the analysis of petroleum fractions containing aromatic and sulfur
              compounds. In these cases the bands are placed one above the other
              so that differentiation is difficult $\underline{/}$Ref 11$\underline{/}$. These complex mix-
              tures can be analyzed by combining mass-spectroscopy with chromato-
Card 1/4   graphy $\underline{/}$ Ref 15, 16 $\underline{/}$ and in infrared and ultraviolet spectroscopy

Application of Mass-Spectroscopy for Chemical Analysis   SOV/63-4-2-4/39

$\overline{}$Ref 17-18$\overline{}$. The composition of analyzed mixtures is determined
by absolute or relative methods. The absolute graduation coefficients
vary in every spectrometer, the relative coefficients are more stable.
A measure for the content of a substance is the "complete ionization"
which is the sum of all band intensities of the spectrum of the mix-
ture. Recently electronic computers have come to be used for calculat-
ing the composition of mixtures $\overline{}$Ref 24$\overline{}$. Mass-spectroscopy has also
been used for the analysis of esterified fatty acids, condensates from
industrial fumes from the atmosphere of big cities, etc $\overline{}$Ref 29, 30$\overline{}$,
for the determination of gases in metals $\overline{}$Ref 31-33$\overline{}$, etc. The dis-
tribution of the band intensities usually corresponds to the structure
of the molecules. The theoretical calculation of the band intensities
is possible only for the simplest case, i.e. the molecule H_2. A theory
of the mass-spectrum must still be developed. The kinetics of chemical
reactions is determined by taking samples at the beginning and the end
of the process or by the continuous method in which the reacting mix-
ture is directly passed into the ion source of the mass-spectrometer.
The last method can be used for the determination of intermediate pro-
ducts, like free radicals. The use of low-energy electrons avoids the
dissociative ionization of molecules. It has been proposed to use
photoionization, because the monochromatization of light is simpler

Card 2/4

Application of Mass-Spectroscopy for Chemical Analysis   SOV/63-4-2-4/39

than that of slow electrons $\underline{/}$Ref $9\underline{/}$. Free radicals are passed into the area of ionization in the form of a molecular bunch in order to avoid reactions with metal surfaces, etc. The mass-spectroscopy of free radicals is applied on a broad scale. It is also employed for the determination of ions in the flames of hydrocarbons and hydrogen $\underline{/}$Ref 91, 92$\underline{/}$. A system for the determination of the composition of free radicals has been developed by the authors $\underline{/}$Ref 73, Figure 3$\underline{/}$. Recently the cross-sections of ion-molecular reactions have been determined $\underline{/}$Ref 98, 99$\underline{/}$. Levina determined the isotopes of Fe, Zn, Mg, Ni, Cr, Pb and Sb by means of mass-spectroscopy $\underline{/}$Ref 106$\underline{/}$. Solid bodies are evaporated in a vacuum spark. In substances with low ionization potentials surface ionization may be used. Admixtures of 10^{-3} to $10^{-5}\%$ may be determined by these methods. This is important for the production of semi-conductors, pure metals, etc. Mass-spectroscopy is used in the USSR for the control of the evacuation conditions of electrovacuum apparatus $\underline{/}$Ref 116$\underline{/}$. Tantsyrev controlled the purity of inert gases by this method. Improvements of the method consist in the application of new cathodes, e.g. a thorium-iridium cathode $\underline{/}$Ref 119$\underline{/}$, and the utilization of an electrometric amplifier, a secondary electronic amplifier measuring currents of less than 10^{-15} a. In the USSR the mass-spectrometers MI 1301, MI 1305, MKh 1303 have a resolving power of 400 - 600,

Card 3/4   the apparatus MV 2301, a power of 5,000.

Application of Mass Spectroscopy for Chemical Analysis   SOV/63-4-2-4/39

There are 3 diagrams, 2 tables and 126 references, 36 of which are Soviet, 55 English, 11 American, 8 Canadian, 5 German, 5 Belgian, 3 French, 2 Swedish and 1 Polish.

Card 4/4

SOV/62-59-7-37/38

5(4)

AUTHORS: Tal'roze, V. L., Frankevich, Ye. L.

TITLE: Measurements of Reaction-Constants of Ion-Molecule Reactions by Means of the Pulse Method (Izmereniya konstant skorostey ionno-molekulyarnykh reaktsiy impul'snym metodom)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, p 1351 (USSR)

ABSTRACT: It followed from observations made in the ion-molecular processes in the ion source of the mass spectrograph (Refs 1-3) that the processes, if not endothermally, mostly proceed without activating energy, and that their cross section often exceeds that of gas kinetics. In connection therewith, a measuring method was worked out by the authors, by the aid of which it is possible to observe directly the kinetics of ion-molecular processes in the ionization chamber of the mass spectrograph. Ionization is excited here by periodic electron pulses of the duration of 10^{-6} sec. The thermal energy of the ions produced first is determined from the temperature of the chamber walls. The secondary ions are produced in the time t after ionization. The rate constant is then expressed by the ratio of the secondary and primary flux in its

Card 1/2

Measurements of Reaction Constants of Ion-Molecule   SOV/62-59-7-37/38
Reactions by Means of the Pulse Method

dependence of t. In this way, the constants of the following reactions were determined:

$CH_4 + CH_4^+ = CH_5^+ + CH_3$ ($11.6 \cdot 10^{-10} cm^3$/mol.sec at T= 370°K) and

$H_2O + H_2O^+ = H_3O + OH$ ($8.5 \cdot 10^{-10} cm^3$/mol.sec at T=410°K). There are 3 references, 1 of which is Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

SUBMITTED: March 17, 1959

Card 2/2

SOV/76-33-4-32/32

5(4)
AUTHORS: Tal'roze, V. L., Frankevich, Ye. L.

TITLE: On Ionic Molecular Reactions in the Gaseous Phase and the Ion
                Impact Method (O ionno-molekulyarnykh reaktsiyakh v gazovoy
                faze i metode ionnogo udara). On the Reply of F. W. Lampe
                and F. H. Field (Ref 1) (Po povodu otveta F. V. Lampa i
                F. G. Filda (1))

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 955-957
                (USSR)

ABSTRACT: The authors of the article under review found that in the
                case of ionic molecular reactions in the gaseous phase a transi-
                tion of the proton as well as of the hydrogen atom takes place
                with larger cross section in a collision with a molecule, and
                no activation energy is required if the reaction is exotherm
                or thermoneutral. Similar results were obtained by the American
                scientists (Refs 7, 8). It is pointed out that the criterion
                established by the authors in an earlier work (Ref 9):"in the
                case that no transition reaction of the H-atom or proton is
                observed, there is an endotherm reaction" is of an empirical
                nature and was confirmed with 50 reactions. The fact is referred
                to that Lampe and Field (Ref 10) could not observe the ions

Card 1/2

SOV/76-33-4-32/32

On Ionic Molecular Reactions in the Gaseous Phase and the Ion Impact Method.
On the Reply of F. W. Lampe and F. H. Field (Ref 1)

CD_4H^+ in the ionization of the mixture CD_4 - H_2 probably because of an insufficient differential evacuation of the mass spectrometer, because the experimental results (Table) of the authors point to the formation of CD_4H^+ ions. After mentioning some examples the authors state that in the transition of hydrogen in an ionic molecular reaction in the gaseous phase the occurrence of a "solubility barrier" is a general phenomenon, independent of whether the transition takes place in form of protons, atoms or hydride ions. There are 1 table and 15 references, 8 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (Academy of Sciences, USSR, Institute of Chemical Physics, Moscow)

SUBMITTED: January 16, 1959

Card 2/2

USCOMM-DC-61061

5 (4)

AUTHORS: Frankevich, Ye. L., Tal'roze, V. L.   SOV/76-33-5-21/33
               (Moscow)

TITLE: The Proton Affinity of the Molecules of CH_3OH and C_2H_5OH
               (Srodstvo k protonu molekul CH_3OH i C_2H_5OH)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 5,
               pp 1093-1099 (USSR)

ABSTRACT: The affinity mentioned in the title was determined by means
               of the ionic impact method. At first the formation of

               $CH_3OH_2^+$ ions in the ionization of methyl alcohol vapors or

               mixtures of alcohol with acetylene, ammonia, or water was
               investigated. The results of measuring methyl alcohol are

               shown in figures 1-5. The relative yield of $CH_3OH_2^+$ ions

               increases proportionally to the stream of ions $I_{CH_3OH^+}$.

               Hence the reaction $CH_3OH^+ + CH_3OH \longrightarrow CH_3OH_2^+ + CH_3O$ is

Card 1/2   derived. Then the process of the ionization of the mixtures

The Proton Affinity of the Molecules of CH_3OH and
C_2H_5OH SOV/76-33-5-21/33

and of ethyl alcohol is analyzed in the same way (Figs 6-9).
Table 1 shows the ionization potentials and the dissociation
energies of the R-H bond. The limits obtained are: 177 kcal/mol $<$
$< P_{CH_3OH} <$ 182 kcal/mol and 185 kcal/mol $< P_{C_2H_5OH} <$ 202 kcal/mol.

By comparison of these values with $P_{H_2O} = 169 \pm 2$ kcal/mol
determined earlier (Table 2) it appears that they are about
20 kcal/mol higher than the values obtained so far by an
indirect way. The author thanks Academician V. N. Kondrat'yev
for valuable advice given. There are 9 figures, 2 tables, and
9 references, 5 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR institut khimicheskoy fiziki Moskva
                (Academy of Sciences of the USSR, Institute of Chemical Physics,
                Moscow)

SUBMITTED: October 24, 1957

Card 2/2